

## Individualized Stress Detection System, Phase II

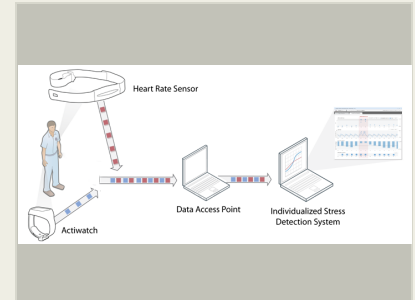
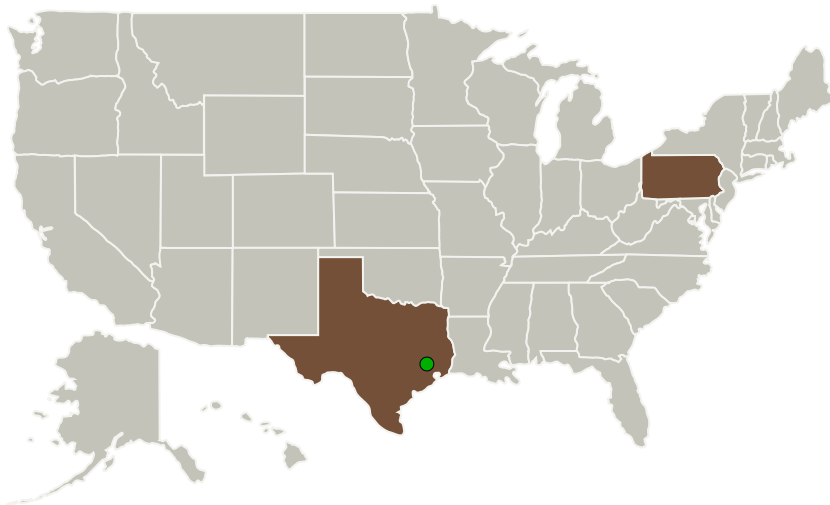
Completed Technology Project (2012 - 2015)



## Project Introduction

Given the extended duration of future missions and the isolated, extreme, and confined environments, there is the possibility that stress-related behavioral conditions and mental disorders (DSM-IV-TR) will develop. The overarching goal of this project is to deliver an integrated system that will track physiological signals (heart rate and heart rate variability) and behavioral signals (sleep wake patterns) to detect chronic stress, hyperarousal, and insomnia during space missions. This project will deliver both the sensor hardware and signal processing software needed for the real-time data collection and integration with other behavioral health monitoring systems (e.g., Individualized Fatigue Meter and Individualized Behavioral Health Meter). The result of Phase II will be a system that can be deployed in space analog environments for validation testing and ultimately deployed on ISS to assist astronauts and mission support personnel in the detection of astronaut chronic stress, hyperarousal, and insomnia. The critical need for an Individualized Stress Detection System has been identified as a priority outlined in the BHP IRP Gap BMED2. The Technology Readiness Level at the end of Phase II will be TRL 5.

## Primary U.S. Work Locations and Key Partners



Individualized Stress Detection System Project Image

## Table of Contents

Project Introduction	1
Primary U.S. Work Locations and Key Partners	1
Project Transitions	2
Images	2
Organizational Responsibility	2
Project Management	2
Technology Maturity (TRL)	3
Technology Areas	3
Target Destinations	3

## Individualized Stress Detection System, Phase II

Completed Technology Project (2012 - 2015)



Organizations Performing Work	Role	Type	Location
Pulsar Informatics Inc	Lead Organization	Industry	
● Johnson Space Center(JSC)	Supporting Organization	NASA Center	Houston, Texas

## Primary U.S. Work Locations

Pennsylvania	Texas
--------------	-------

## Project Transitions

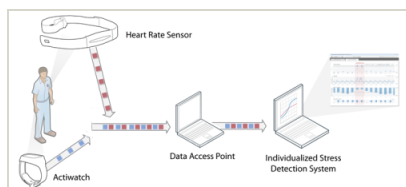
▶ **April 2012:** Project Start

✓ **April 2015:** Closed out

## Closeout Documentation:

- Final Summary Chart(<https://techport.nasa.gov/file/137397>)

## Images



## Project Image

Individualized Stress Detection System Project Image

(<https://techport.nasa.gov/image/134839>)

## Organizational Responsibility

## Responsible Mission Directorate:

Space Technology Mission Directorate (STMD)

## Lead Organization:

Pulsar Informatics Inc

## Responsible Program:

Small Business Innovation Research/Small Business Tech Transfer

## Project Management

## Program Director:

Jason L Kessler

## Program Manager:

Carlos Torrez

## Principal Investigator:

Daniel Mollicone

## Co-Investigator:

Daniel Mollicone

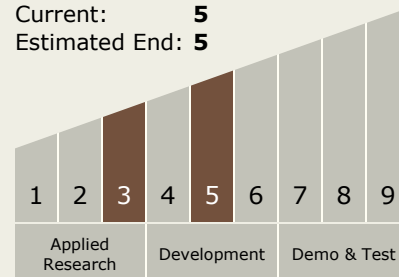
## Individualized Stress Detection System, Phase II

Completed Technology Project (2012 - 2015)



### Technology Maturity (TRL)

Start: **3**  
Current: **5**  
Estimated End: **5**



### Technology Areas

#### Primary:

- TX06 Human Health, Life Support, and Habitation Systems
  - └ TX06.3 Human Health and Performance
    - └ TX06.3.3 Behavioral Health and Performance

### Target Destinations

The Sun, Earth, The Moon, Mars, Others Inside the Solar System, Outside the Solar System